RESEARCH PAPER

Sustaining Participatory Forest Management: Case Study Analyses of Forestry Assistance from Tanzania, Mozambique, Laos and Vietnam

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Abstract This paper introduces case study analysis against an illustrative model, the 'house model', which contains a number of key elements for sustaining participatory forest management (PFM). In theory, the elements in the model are basic requirements for ensuring that the participation of local people in forest management will continue after external donor support ceases. In practice, the study shows that none of the four case study projects managed to build the whole 'house' nor did they have tangible impacts on all the elements, and long-term sustainability of PFM is still questionable. All four donor-supported projects had limited tangible impacts on access to information and benefits, especially with regards to long-term extension services, markets and marketing information. These were the most difficult elements to influence during and after the projects in all four cases. It is concluded that in order to sustain PFM, there needs to be a solid institutional foundation which as a minimum ensures local people's access to information and benefits from forests under the PFM.

Keywords Donor support · Extension services · Market access · Marketing information · Participatory forest management · Sustainability

Introduction

A variety of institutional and legal frameworks have been developed to involve local people in forest management and conservation, and more than 60 tropical countries have opted for a decentralised forest management where, at least in

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theory, authority over management, protection and utilisation is placed at the lower levels of society (Hobley 1996; Agrawal and Gibson 1999; Wily 2001; Ferguson and Chardasekharan 2004). However, several obstacles still exist at local and national levels that make it difficult for the rural poor all over the world to: participate in natural resource management; secure their rights in decision making; and gain access to land tenure, valuable natural resources and markets, and investment opportunities related to such resources (Sivaramakrishnan 2000; Brown et al. 2002; Larson 2003; Walker 2004; Taylor 2005; Hyakumura and Inoue 2006). With regard to forest management and utilisation, the key issue is how to achieve a balance between harvest, forest protection and tree planting, and to minimise the negative impacts on the poor and generate benefits for them (Steel 2005). The basic assumption of this paper is that participatory forest management (PFM) is balancing the three aspects of sustainability, environmental sustainability, economic sustainability and social sustainability, as it aim to contribute to conservation and sustainable use of resources and to income-generating practices as well as to participation of poor or minority groups in forest dependent communities (FAO 2001; Grimble and Laidlaw 2002; CIFOR 2005; Sunderlin 2005; Durst et al. 2005).
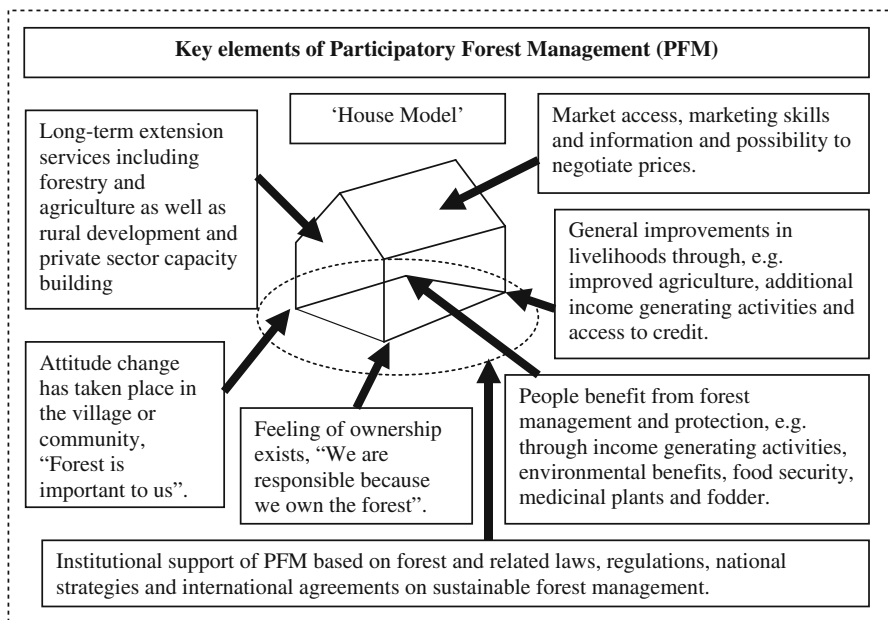
However, it is also recognised that PFM cannot guarantee the three aspect of sustainability by the rural poor without simultaneously developing various aspects of forest governance at national and sub-national level (Nhantumbo 2000; Shackelton et al. 2002; Ribot 2004). For example, implementation of land reforms, improvements in regulations of trade, organisational reforms at sector ministries and revenue authorities, establishment of advocacy organisations that can assert local people's legal rights and demand commitment and services of national and sub-national governments, and higher salaries for civil servants such as extension officers can have a greater effect on sustainability than specific forest policy and legislation supporting local communities' rights to the forest resources (Bowles et al. 1998; Kellert et al. 2000; Cuco et al. 2003; Ribot and Peluso 2003; Brown et al. 2005; Mustalahti 2007).

The purpose of this paper is to further the understanding of the multifarious elements related to sustainability of donor-supported PFM initiatives. Commitment, motivation and continuity are, in this case, seen as key elements of sustainability: Local people's commitment and motivation for PFM interventions and the continuity of PFM activities after external donor support ceases, has been examined for Finnish development assistance supporting participatory development in forest management and conservation in four countries, namely Tanzania, Mozambique, Laos and Vietnam. Field work was conducted in each country in order to answer the specific research question: how can participation of local people in forest management be sustained? The so called 'house model' was used to assess the study sites: the model contains a number of key elements for sustaining PFM, and this study examined if the four donor-supported PFM projects managed to build the whole 'house', sustain participation in forest management during and after the external donor funding. The paper begins with defining methods and choice of case study projects. Next, the central findings are discussed and finally the conclusions give answers to the main research question.

Research Method and Study Sites

Applied methods are presented in Appendix 1. During the first round of interviews in 2002–2004 in study sites in Tanzania, Mozambique, Laos and Vietnam, the main method was open-ended individual, household and group interviews of PFM project stakeholders. Consideration of the theories mentioned above and the results from the first round of field work led to development of the following assumption: wider elements must be in place for making local people able to participate in forest management in the long-term and to sustain participation in forest management. These wider elements are illustrated in Fig. 1: PFM includes 'a building site', 'four corner stones', 'walls' and 'roof'. The supportive institutions, laws and policy environment form the building site and the corner stones are: (1) attitude change towards forests, (2) feeling of ownership to forest resources, (3) benefits from forest management and protection, and (4) general improvements in livelihoods. The walls stand for long-term extension service provision which includes different areas of rural development and provides information needed. The roof represents markets for forest products and other products and services from the area, for example environment services which are paid by government or foreign funds. The model includes elements from different level. The building site presents the national level and the several elements of house presents the individual, household and community level.

This illustrative 'house model' was used as a tool guiding the second round of interviews: during the interviews in 2005–2006, the elements illustrated in Fig. 1 were used as a tool to examine the different forms of PFM associated with the selected case study projects. These types of illustrative models and metaphors are

Fig. 1 A model of PFM and its key elements

commonly used in participatory and action oriented research and learning processes in order to enhance the knowledge of participating stakeholders, trainers and researchers (Pretty et al. 1995). For example, an illustrative house metaphor has been used previously in the literature on participatory forestry (Fisher 1992; Fishers 1993; Mustalahti and Nathan 2007). For example, Fisher (1992) proposed a house model to illustrate relationships between organisational and institutional features in indigenous Nepali forest management systems. According to Fisher (1993) organisational model of forest management systems has two levels: (1) walls presents essential level including institutional base with shared norms and behaviours, and (2) roof presents optional level with organizational superstructure meaning the structures of recognised. With the organizational model and the house metaphor, Fisher (1993) argues that concentrating efforts on establishing the formal organisation rather than the institutional base is like building the roof of a house that has no walls to support it.

The participatory research methods were combined with interviews in order to make interviews more analytical, truthful and straightforward. Chambers (2005) argues that, in developing countries, a broad stakeholder involvement is necessary to identify issues of concern, and multidisciplinary methods are needed to stimulate improvement and learning. A combination of interview and participatory research methods called Participatory Rural Appraisal (PRA) methods, such as mapping exercises, village histories, household diaries, transect walks in villages and forests, offered the possibility to analyse the implementation of PFM, to develop experiential knowledge, and to understand the participants' point of view.

Also the triangulation of information from interviews was recognised to be very important especially in situations where local villagers were expecting the researcher to act as a donor. For example transect walks were used as triangulation method: During the first round of field work, the transect route in a village and in a forest was identified and the same route was walked together with same group of informants during both field work periods. Main aim was that issues related to the "house model" were discussed during the individual and group interviews and later on the same issues were observed in the village and the forest area. For example, when improvement in local income generation was identified and discussed during the interview, after the interview the group of key informants showed the income activities, for example timber harvesting and honey production sites, during the transect walk. During the second round of field work the information related to these activities were collected by individual and group interviews and observed during the repeated transect walk.

Also the participant observation methods such as physical involvement through participation in everyday life were considered essential to the learning process. In the case of anthropology, the participant observation methods aims to understand people's life through these methods (Nygren 2004), whilst the 'participant' in the participatory research refers to people's involvement in the research process (Wright and Nelson 1997). In this study, participatory research and participant observation methods aimed at both: for example, PRA methods aimed to involve local people in the research process while the methods provided essential means of learning for the author. Additionally, the interviews of central government forestry

authorities, NGO representatives, sub-national government authorities, and inter-national and national PFM project team members gave important information related to institutional support of PFM, rural development, extension services and forest law enforcement. Particularly in Tanzania, action research methods were used in order to self-critically analyse the PFM implementation through participant observations and stakeholder reflections.

In the case of Mfundia—the case study area in Tanzania—the research included a process of change as a result of participatory action research. Participatory action research aims to carry within itself the process of change (Reason 1994; Chambers 1998; Greenwood and Levin 1998; Swantz et al. 2006). Action researchers can only create knowledge in co-operation with social actors based on trust and free agreement to participate (Aagaard and Svensson 2006, p. 4). This type of research can be also called as creation of living knowledge—"knowledge which is valid for the people with whom I work and for myself" as stated by Marja-Liisa Swantz (in Reason and Bradbury 2006, p. 1).

And the author of this article participated in following action process: (a) planning: in 2002 villagers together with district and regional forest officers carried out a boundary and forest management planning process in five villages surrounding the Mfundia forest; (b) action: implementation of forest management plans and by-laws developed by the elected village forest committees that started in 2003, (c) observations: transect walks with villagers in the village forest areas, household interviews and open-ended group interviews in 2003 and in 2005 in three villages, Makangara, Kijango and Makumba; (d) reflections: during 2002–2005, individual and group discussions with various stakeholders from national level to village level, including their reflections to observations but also their reflections related to implementation of PFM in other forest areas of Tanzania.

The study sites present different forms of PFM: (a) village forest management carried out by an individual village or group of villages (a case from Tanzania), (b) joint forest management in central government forest areas where local people participate in forest management and protection activities (cases from Mozambique and Laos), and (c) individual farmers' participation in farm forestry and in management of natural and planted forest areas (a case from Vietnam). The selection of case study projects was based on project documentation and the first round of interviews in 2002–2004.

Tanzania: The objective of East Usambara Conservation Area Management Programme (EUCAMP 1999–2002) in Tanga Region was to contribute to Tanzanian efforts to conserve biodiversity in harmony with the needs of local people. As a part of its project activities, EUCAMP worked with villages surrounding so-called Catchment Forest Reserve. On village land areas, outside the government managed catchment forests, village councils may declare village land forest reserves (VLFRs). During an action research process the case study area was Mfundia VLFR which is managed by five villages surrounding the forest area in Korogwe District. The VLFR was established in collaboration with the District Council. The action research process commenced in 2002 with facilitation of legal forest boundary process, forest management planning and the establishment of forest by-laws, and continued by following the implementation process of forest protection activities.

Mozambique: From 1999 until the end of 2004, Finland supported provincial forest services and forest inventories in Mozambique (Projecto de Maneio Sustentavel Recursos, PMSR). In Zambézia Province the project supported the capacity building of a local environmental association called ACODEMADE (Associação Communitária de Defesa e Saneamento do Meio Ambiente do Derre). The association was identified by the PMSR as a local coordinator of protection activities of Derre Forest Reserve in Morrumbala District. The case presents an example of a forest management model where the local community association, members of local communities, and provincial and district forest office jointly manage and conserve of a national forest reserve.

Laos: The five-year Forest Management and Conservation Programme (FOMACOP) and Village Forestry Sustaining Phase were implemented between 1995 and 2001 with financial support from the World Bank and technical assistance via the development assistance from the Government of Finland. The ongoing project is called Sustainable Forestry for Rural Development Project (SUFORD 2003–2008). At present, the forest management units (FMUs) in participation with local villages under the district administration are responsible for carrying out production forest management on behalf of the central government. The study aimed to compare the PFM models of FOMACOP and SUFORD implemented in three villages located Dong Phousoi Production Forest in Xe Bang Fai District, Khammouane Province.

Vietnam: The Vietnam-Finland Forestry Sector Co-operation Programme (VinFinFor 1999–2003), focussed on allocation of forestland to households and micro-credit related to farm forestry and rural development initiatives in the communes of Bac Kan Province. Three villages in Cho Don District in Bac Kan Province were selected for the case study. In addition to the interviews, six households had a household diary and recorded their agriculture and forestry activities during 1 year. This exercise was used in order to collect information on forest use, management and conservation activities, and incomes and costs of forest management and conservation.

Discussion of the Central Findings

Appendix 2 presents central findings from the case studies. The following sections explain the 'house model' systematically and discussed more fully the key elements of PFM, with reference to the cases, and analyses problems related to constructing and sustaining PFM.

Institutional Support of Participatory Forest Management

In Tanzania, decentralisation has been implemented in various sectors as a result of long-term support for democratic governance from western countries and the local government reform programme. In accordance with this trend, unreserved forest areas have also been placed under village management through establishing legal boundaries. Based on the case study in Tanga Region, it was discover that in the case where legal boundary identification process was carried out and villages

acquired the titles to the Village Land Forest Reserve, the village forest committees are committed and have continued the conservation and management activities after the cessation of donor funding. With regard to PFM, it was also observed that political support and legal institutional reforms, such as implementation of land laws and benefit sharing agreements, should be established and recognised by the government and not only by individual village or projects. The experiences from the action research process as well as the stakeholder reflections suggest that sustaining participation and scaling-up of PFM requires implementation of several broad reforms such as (a) decentralisation of decision-making, (a) incentives for local civil society organisations and for civil servants to carry out forest extension services, (b) clear laws and regulations of land tenure and utilization of natural resources, and (c) implementation of forest law enforcement and benefit sharing.

In Mozambique, for example in the case study area the intention has been to set aside a 30,000 ha forest area for community concession management. However, the project did not manage to complete the forest management planning and hence the allocation process of community concession has not been finalised by government authorities. Observations and interviews in Zambezia Province suggest that allocation of certificates for community land rights, including management rights of forest concessions, have not been widely implemented, not because of technical capacity or resources in Mozambique, but because of a direct conflict of interest between the public responsibilities and private interests of civil servants. In 2006 the Mozambique National Directorate of Forestry and Wildlife signed guidelines for utilisation of so-called community developments funds, under which the communities living within forest concession areas would receive direct benefits from harvesting activities. In terms of benefit sharing arrangements, 20% of any tax levied on forest and wildlife exploitation is destined to benefit communities (RoM 2002, art. 102). These opportunities seem to be in place but they are not utilised because of lack of institutional support to establish benefit sharing arrangements.

In Laos, the main achievement of PFM projects supported by the World Bank and Finland is a PFM model for production forests, based on technically sound forest management which reportedly has stimulated economic development in the villages (Williams and Heinonen 1998; Phandanouvong 2002; Mustalahti 2007). Villages are allowed to participate in forest management activities and share benefits, but may not hold land title of production forests. Initially, the implications of the PFM projects were clearly unfavourable for sawmill owners because the project introduced auction prices and a new regulation that did not allow logging quotas to be allocated directly to sawmills. Laos is under the lead of communist party, army leaders and ruling party members and these stakeholders have major influence on the implementation of national forest policy and are directly involved in sawmill business (Stuart-Fox 2006). In the case study villages a critical analysis of participation in the current PFM model shows increases in use of villagers as a labour force and it seems that the model does not ensure local people's decision-making capacity and rights with respect to valuable natural resources.

In Vietnam, according to the forest laws and regulations households and communities are allowed to participate in management activities but do not necessarily have permanent user rights to forest resources: households and

communities can hold forestland certificates for 50 years but cannot permanently own forestland. During analysis of the legal frameworks and observations at field sites it was recognised that it is often the principle of 'the people do' that is applied—in terms of obligatory labour contributions to public works such as forest protection and rehabilitation. In July 1998, the Tenth National Assembly of Vietnam approved the Five Million Hectare Reforestation Programme (5MHFP)which was supposed to facilitate the reforestation and rehabilitation of 5 M ha of forest land, so that by 2010 the total forest area of the country would reach 14.3 M ha. This is equivalent to 43% forest cover and this would restore the forest cover to the level of 1943 which is a highly ambitious target in a country with rapidly growing population and needs for agriculture production.

Attitude Change Towards Forests

In Tanzania, it was recognised that a central issue was the attitude change of the local elite. In Makangara village, where the chairman was actively promoting tree planting and forest protection, the villagers were most motivated to participate in forest management planning activities in the beginning of the PFM process. However, the chairman reported that "Problems are still there and some people still destroy the forest, but we are trying to use wisdom rather than punishment. Some people do not even know the benefits of the forest and some are very old. We cannot keep punishing people. The best thing is to educate them". In 2002, during the beginning the action research process, the chairmen of Kijango and Makumba villages were not interested in forest protection and forest management planning activities. There were several conflicts related to encroachment and forest fires. However, little by little these two chairmen changed their attitude, when they saw that trees were regenerating and understood that the villages can legally utilise their forest resources in future.

In Mozambique, the environmental association reported that because of the short implementation period of the case study project and low level of education in communities, the project did not have recognisable impacts on attitude change towards forest and did not manage to establish self-sustainable systems based on the local people's own interests in protecting forests. A small group of members of the environmental associations do understand the link between loss of forest and environmental problems, such as dry micro-climate and drying rivers in the area. Based on the interviews it was recognised that links between forest encroachment and micro-climate changes is not understood in the communities. In the case study area, transect walks and interviews showed that there is lot of local knowledge relating to medicinal plants and other non-timber forest products, but the very same people who hold this knowledge do not consider encroachment and forest fires to be a problem for the environment. There seems to be two reason for this: earlier due to the civil war, most people have not had access to information through radios or schools, and people still consider fire as a normal tool for hunting and agriculture land preparation.

In Laos and Vietnam, village histories and repeated transect walks in the forest areas helped reveal the major importance of attitude change towards the forest in villages. In Laos, the interviewed forest committees and village leaders pointed out

that because of capacity building and income generating activities by projects, they came to experience the indirect and direct benefits of forest. Earlier trees did not have high value because villages could not sell the timber legally and the big trees were more as burden to remove in order to get new farming land. Interviewed villagers told that they are motivated to conserve forest resources because of expected monetary and non-monetary benefits, although they pointed out the increasing needs to utilise timber for wood constructions in village and villages' forest utilisation zones for paddy fields and grazing areas rather than forest protection zones. In Vietnam, the case study households have managed to protect the forest well once the attitude towards forest changed: the six households interviewed considered that the donor supported PFM project had managed to increase environmental awareness, but also that project activities showed that forest resources can provide monetary benefits, and this has changed the villagers' attitude towards forests.

Feeling of Ownership Over Forest Resources

In Tanzania, based on analysis during the action research, it was recognised that the growing feeling of ownership over forest resources led village governments to very strictly protect and prohibit the use of resources. Although by-laws and high fines have also brought complaints by cattle keepers who cannot graze their animal in forest anymore, the village governments consider the non-monetary benefits through forest protection and the possible monetary benefits in the future to be more important, so they decided to stop grazing and encroachment in the village forest areas. In spite of complaints by cattle keepers, the allocation of land and legal rights has been an important way to motivate people to participate in forest conservation: the forest committee members in three villages pointed out that one of the reasons for the success of protection is that the village forest areas were legally identified and demarcated. Village forests are endowed with a socio-institutional form supported in the forest and land laws, and village forest committees have the legal rights to manage these forests. The village can also use resources within its local sphere or mandated into its care. It is important to recognise that devolution of forest management is based on forest and land laws in Tanzania.

In Mozambique, compared to the interviewed households and forest committee members in Tanzania, six interviewed households and members of local environmental association did not have a strong ownership of land and did not feel responsible over the natural resources. Until 1975, before independency of Mozambique, most people in the area worked for Portuguese land owners. In community histories and in the stories from environmental association members, people still highlighted that areas used to be own by ′patrãos′, the Portuguese farmers and they did not understand why the Finnish supported forestry project did not own the forest and offer jobs, nor pay salaries to, for example, the community in case of forest protection and fire control activities.

In Laos, the central government holds the management and commercial utilisation rights over the natural forests. The so-called village forests are normally degraded forest areas next to a village, and in these areas the village can harvest logs for

housing and social welfare activities. In the case study area, village leaders consider that a village is responsible for protecting the forest because of their customary ownership. During transect walks and participatory mapping exercises it was recognised that all three case study villages have their traditional village boundaries and consider the forest inside village boundary as belonging to the village. A village forest committee patrols inside their village forest boundaries as reported by forest committee member from Some village: "Thamlay villagers have stolen timber for construction purposes. When we met them during patrolling activity, we told them about village forest protection rules and regulations and asked them to stop it, but most of them came from poor families so we did not ask them to pay or did not take any action against these people". Population is increasing in the case study villages and more construction materials and land is needed for paddy fields and grazing areas, as reported by a village chairman from Kok Tong village in 2006 that "In year 2003 there were only 400 people in the village and now there are 501."

In Vietnam, households considered their old shifting cultivation areas, which nowadays are under bamboo and trees, to be owned by the households based on their customary rights. The six interviewed households felt responsible for protecting these forested slopes. They said that within a time span of one generation, the landscape has changed and the micro-climate has improved in the area. The Dao ethnic minority in the case study area is still called 'people of the forest' because they have always lived close to forests and had a good knowledge of forest products such as medicinal plants. It is important to recognise that the change of the Dao from being shifting cultivators towards forest managers has been a long process, regulated by the forest protection laws. Based on the interviews it could be argue that more secure land tenure has also encouraged the Dao households to protect the environment: allocation of forestland has improved household economy because they can legally utilise, for example, bamboo resources and use the land tenure certificates to acquire loans, and this has provided them with option of purchasing permanent properties and buy lowland paddy fields.

Benefits from Forest Management and Protection

In Tanzania, although the current monetary and non-monetary benefits are rather limited, the interviewed village governments expect that logging and hunting will be possible in the area when the forest cover has improved and this will increase the benefits. This motivates them to continue the protection activities. After developing the forest management plans and by-laws for the village land forest reserve areas, village forest committees have collected fines when anyone has broken the village forest protection by-laws. The fines and fees are relatively rare. However, the village governments reported that the collection of fines and fees are beneficial in order to cover allowances to motivate the forest committee members to carry out patrol activities.

In Mozambique, in the case study area, although the Derre Forest Reserve has been a national forest reserve since 1950, the government has not provided any long-term funding for local communities who are expected to protect the forest reserve and, for example, control forest fires and stop encroachment in the forest

reserve. The local environmental association and their volunteers have not received funding for the patrolling and forest fire control activities after the Finnish supported project was phased out. Occasionally, the association and its volunteers might receive some allowances from the provincial agriculture and forestry administration, if they catch illegal loggers. In some cases the volunteers even risk their life when stopping illegal loggers. Patrolling is difficult for the local environmental association because their fellow community members take part in the illegalities.

In Laos, the previous PFM project piloted benefit sharing regulations in the two production forest areas and villages got relatively high income through legal logging activities. For example, the village of Some earned US$ 14 000 from competitive bidding for timber from their forest management area during 1997–1999. The village chairman reported that this motivated villagers to report illegal logging activities and try to protect the forest. However, since 2004, the Lao Government has implemented new regulations for benefit sharing with respect to central government production forests, and it seems that benefits for participating villages will not be so tangible any more, only 25% of the total log sales. For example, in the fiscal year 2004–2005 the benefit for participating villages from the forest area close to Some village was US$ 5 536. The area includes six villages and benefits should be shared between them meaning that the village of Some would receive only US$ 923.

In Vietnam, in the case of land loss to protected forest areas the household should get a so-called protection agreement contract which identified the compensation to be paid for the farmers' conservation efforts. In the case study area, to date only a few households have protection agreement contracts and have received compensation funds, amounting to 3 US$ per hectare. According to the households, their main motivation for protection is production of non-timber forest products which can be collected from the protected forest areas, and improved forest are important for their food security and a source of fodder for livestock. For example, in 2005 all six case study households received additional income and supplementary food security from forest products. They sold bamboo to a chopstick company and a paper factory owned by the forest enterprises, and one of the case study households managed to earn US$ 160 by selling bamboo from their 4.7 ha of protected forest. The price of bamboo is still very low. The enterprises are government owned and farmers do not have a possibility to negotiate a price for their products.

General Improvements in Livelihoods

In Tanzania, the PFM in the Mfundia forest have not yet generated tangible impacts in general improvements in livelihood and for example the non-monetary benefits are difficult to estimate. However, the social impacts of PFM activities can already be reported: the conflicts between forest committees and cattle keepers could be seen as a negative impact in livelihoods.

Also, in Mozambique, according to interviewed households, the case study project did not generate improvements in livelihoods. The most successful income generating activity by the project was the training program for carpenters. However, the interviewed carpenters later reported that after the project support ended they did not have legal access to high quality materials and they have not been able to

produce high quality furniture for external markets. The materials for furniture come mainly from the government forest reserve. In the area of the Derre Forest Reserve, illegal logging has occurred and some of the logs are left in the forest. In 2003, the Ministry of Agriculture granted a permit to the carpenters to use abandoned logs. Since the project phased out in 2004 the carpenters have not managed to get a licence allowing them to fell trees or use of abandoned logs. However, some of carpenters have managed to carry out their activities and are well-known for their skills in the community.

In Laos, the project aimed to establish revolving funds in the villages in order to provide funding for paddy field expansion and animal husbandry activities. Food security, especially rice sufficiency, is still a problem in Laos. "If we do not have rice, we do not have anything", said the young father from a case study household. Because of low productivity of land and small size of paddy fields, nearly all households in the case study villages need to purchase additional rice. For example poor families cannot get access to fertilisers to improve the productivity of their land and need to clear more land: forest areas close to villages are heavily encroached upon because of increasing need for paddy fields. Gum trees and cash crop plantations are also common in the area and there is increasing pressure from local people, promoted by government authorities and private sector, to replace the natural forest with agriculture and wood plantations.

In Vietnam, interviewed households and key informants such as village chairmen and women's union members reported improvements in livelihood due to project activities related to agriculture improvement, additional income activities such as livestock, and a micro-credit programme that has provided possibilities for new income sources. And they claimed that improvement in livelihoods in general help people to protect forest: according to the interviewed household heads, the main reason for successful forest protection was that they have managed to improve their agriculture production and they have new income generating activities. Because of that they simply do not need so much land for upland rice production and it is possible for them to leave slopes for forest production and protection purposes. Through credit provided by the project and banks, households gained access to lowland paddy fields and some of them stopped upland rice cultivation completely. Others used the credit to start small scale-animal husbandry activities and they considered that these activities provided enough additional income so that they do not need to continue with their upland rice cultivation.

Long-Term Extension Services

The sustainability of extension services was a general problem in all four case study countries. In Tanzania, Mozambique and Vietnam, regular extension visits to the villages were stopped after the phasing out of external donor support. In Laos, it is very questionable what will happen after external funding from the World Bank and Finland ceases. The aim is that part of the income from logging activities is set aside to provide funding for rural development activities and regeneration of forest. These funds could be used for forestry extension in the future. In Tanzania, Mozambique and Vietnam, according to forest policies and laws, part of the national income from

forestry is intended for use in extension services and forest management and protection, such as law enforcement and reforestation activities. However, forestry is not a prioritised sector in these countries and the central and local governments are preoccupied with other sectors, such as health and education that have more direct impact on daily life. For example, in Tanzania, the case study district natural resource office and district foresters participated the planning of the sector support programme plans in forestry sector. In 2005, after 2 years they had still not received any funding from donors through their central ministry. Also the district council did not finance any of their planned activities because, according the district administrative officers, the funds were needed for HIV/AIDS victims and their families in the district.

In all four case study countries, the decentralised model of forest management gives a lot of responsibilities to local government and civil servants, while for the most part their working facilities and condition are very poor. In all case study areas the district forest authorities were expected to change from operating as forest guards to becoming facilitators and extension providers responding to local needs. In all these cases very little forestry extension work and development activities are carried out without donor funds. There are simply no funds for extension, or the civil servants are too occupied with other activities, such as issuing logging licences, that brings money into the official and practical system. There are several reasons for this, including low salaries to civil servants and lack of capacity in financial management to ensure transparent way to collect the royalties. It cannot be denied that corruption or so-called practical norms at different levels in these societies is the crucial reason for the disappearance of funds in the forestry sector.

According to the observations in the case study countries, the outsourcing of extension services does not solve three overall problems of extension availability: (a) the difficulty of making extension services financially viable for poor and less educated people, (b) incompetence and lack of willingness of extension organisations, both public and private, to provide services targeted towards the needs of local communities, (c) lack of information and in-service training for extension institutions. For example in Mozambique, the local environmental association was expected to carry out environmental education and forest protection activities in the case study area but they were unable to solve the financial and other management problems and conflicts within the association. And in Vietnam, farmers were trained to establish village extension networks to perform agroforestry and livestock extension. When the project's technical and financial support came to an end, village extension networks did not have funding to continue the extension activities, nor adequate capacity to access information.

Market Access, Marking Skills and Information

In Tanzania, the village land forest reserve in the case study area is still under strict protection in order to improve the forest cover. However, the village governments pointed out that in future they would like to sell timber from their village forest. This might be difficult because the group interviews with village

governments and forest committees revealed that they do not know: (a) the prices of timber, (b) which species are most valuable trees and (c) what the sustainable harvesting level is per year.

In Mozambique, the case study project facilitated different income generating activities such as carpentry, beekeeping and fish farming. Observation and interviews after the end of the project showed that, when the project was over, the majority of the trained people stopped these activities. The main reasons offered for this by interviewed carpenters and beekeepers were: (a) the communities were far from markets and this meant difficult market access, (b) lack of skills to organise transport, purchase tools and materials such as good quality, legally harvested timber, (c) difficulties to produce high quality products as demanded by the external markets. The local environmental association reported that farmers failed to continue the activities because the external facilitation and the capacity building in these three key issues by the project had ended. The local extension organisations, such as local government and regional agriculture and forestry authorities, are very weak in providing long-term capacity building input due to lack of funding, human capacity and motivation to work in remote areas.

In Laos, the earlier project (1995–2000) in the case study area emphasised the knowledge of village level organisations to estimate the annual sustainable harvesting level. For example, forest inventory activities were exercised during village level training and extension. Currently, the forest management units (FMUs) operating under the district administration are the recognized state organisation, and FMUs are responsible for sustainable management of the production forest areas of the district. According to village forest committees, village has not been empowered to make decisions on, for example, about the permissible species and logging level per year nor to negotiate prices for the timber in their particular village.

In Vietnam, the case study project managed to promote agroforestry models and introduce fruit trees and multipurpose trees for steep slopes. However, the project finished before it had managed to help farmers find markets for their products. Because of lack of markets and marketing extension related to their agroforestry crops, some of the households decided to convert their land into monoculture maize, cassava and elephant grass as fodder for pigs, cows, buffaloes and chickens. Other problems are that farmers are concentrating on production of cash crops promoted by government organisations, although the markets and prices are not secured and, for example, agroforestry crops could fit better to soil condition and steep upland fields.

Conclusions

What was learnt from the four projects with regard to how participation of local people in forest management can be sustained? The key lesson from the case study countries was that, through the forest projects, local people experienced that forests can provide both monetary and non-monetary benefits, and this has resulted in an attitude change towards forest resources. The nature, value, amount and current

availability of the benefits derived were less important: In the areas where people could legally secure their long-term benefits from forest resources, they were motivated to manage and conserve the resources. It was more important that local people came to see themselves as participants in forest management and as conservers for the continuity of PFM. Appendix 2 shows that benefits and general improvement in livelihoods were limited and often accessed only by some individual people who participated in the PFM activities. Only in Laos, the first phase of the PFM project had tangible impacts to local livelihoods in general. Unfortunately, the allocation of valuable forest resources under the management of individual villages was not politically accepted and later on the village forestry model was not implemented in the original form.

The assumption of the study was that the PFM projects should contain the key elements illustrated by the house model in Fig. 1 in order to sustain participation in forest management. The central findings of this study show that none of the four case study projects managed to build the whole 'house', nor did they have tangible impacts on all the elements. Appendix 2 shows that all case study projects had relatively limited tangible impacts on long-term access to information and benefits: The local people acknowledged that extension services, market access and marketing information were the important elements in PFM, and it turned out that these were the most difficult elements for the projects to sustain. And because of that the sustainability of people's participation in the PFM activities is still questionable in all four cases. In Tanzania, Mozambique and Vietnam, the main problem was that the projects could not ensure supportive institutions and funding to take care of extension and marketing activities after the end of the projects. It is highly likely that this will have consequences for people's attitude towards forest resource and the sustainability of PFM in all three cases. In Laos, the project is still continuing, and long-term extension services need to be provided through local institutions and national budget allocations after the project funding ends.

Appendix 2 also shows that institutional support for PFM is still questionable in most cases: Due to the projects' inability to integrate the various elements in the house model into existing institutional structures, there is a genuine risk that under these unfavourable institutional conditions, participation tends to employ local people as a simple labour force—often even without guarantee of being paid—in forest management and protection. A risk is that local people lose the sense of ownership of the resources which was promoted by the projects. And their commitment and motivation will be different compared to the cases where they can make decisions over use of local resources and generate benefits from forests under the PFM.

Appendices

Appendix 1 Methodological approaches during the study

Methodological approaches	Tanzania	Mozambique	Laos	Vietnam	Data collected
Open-ended interviews of central government forestry authorities, regional and local government authorities in case study regions and districts, and international and national PFM project team members (repeated two times per key informant)	Seven key informants	Seven key informants	Seven key informants	Seven key informants	Information related to institutional support of PFM, rural development and extension services, law-enforcement
Open-ended group interviews in community groups/committees (repeated two times per village/community) and villages mapping etc. PRA exercises with community group/committees	Three villages during action research process	Three communities	Three villages	Three villages	Implementation of PFM: villages histories, attitude change towards forest, land use issues, income generating activities
Transect walks (in 2003–2006 the walks were repeated two times per village/community and forest area)	Three transect walks in villages and forest areas	Three transect walks in communities and forest areas	Three transect walks in villages and forest areas	Six transect walks in households' forest areas	To cross-check information related to implementation of PFM
Semi-structured household interviews/observation/discussions	Six households	Six households	Six households	Six households	Households' livelihood and use of forest products
Household diaries (one-year period)	No	No	No	Six households	Forest management and utilisation, income generating activities

Appendix 1 continued

Methodological approaches	Tanzania	Mozambique	Laos	Vietnam	Data collected
Literature reviews	2003 and 2006–2007	2003 and 2006–2007	2004 and 2006–2007	2004 and 2006–2007	Project documents and review reports, legal documents and articles
Stakeholder reflections through discussions, interviews, letters and emails. Some of them also commented on draft researchers papers and conference presentations	Village chairman, two local foresters, two international consultants, a local senior researcher	Local carpentry expert, sawmill owner, two international consultants	Project team members, two international consultants, a government office	Case study households, local PhD student, two international consultants	To understand the context of PFM, rural development, extension services, law-enforcement in the case study countries
Participant observations by the first author in the case study areas and projects (2000–2006)	Through the action research approach and consulting	A volunteer, a consultant and a researcher	A consultant and a researcher	A researcher and a volunteer	To develop experiential knowledge related to PFM and development assistance

Appendix 2 Analyses of the case study projects based on the key elements of PFM

Elements	Cases			
	Tanzania: villages' land forest reserve	Mozambique: joint forest protection of government forest reserve	Laos: joint forest management of government production forest	Vietnam: household level forestry
Building site of PFM: Institutional support for PFM (from villages'/communities' point of view)	Yes, laws and institutional frame are in place and a village can have permanent management and utilisation rights for the forest situated close to the village	No, laws and regulations are clear but weakly implemented and do not guarantee permanent rights for communities to benefit from and utilise valuable forest areas	No, laws and regulations do not allow villages to have legal forest land allocations and to make decisions about valuable natural resources	Yes/No, households are legalised managers but do not have permanent land allocations in case of forest land, and their access rights are limited, e.g., timber in natural forests
Attitude change taken place in the village/community: "Forest is important for us"	Yes, attitude towards forest has changed partly because of the project but also because of other information sources	No, apart from those people who were directly involved in the project activities	Yes, attitude has changed because of tangible benefits from the forest during the project	Yes, the project households are more aware of the importance of the forest
Feeling of ownership by village/community/household: "We feel responsible because we own the forest"	Yes, the project helped villagers to obtain legal ownership of forest land and as a result villagers wanted to protect the area	No, the project did not manage to help them to obtain legal ownership and people do not traditionally have strong ownership feelings towards forest	Yes, they feel that villages traditionally own the forest land, although government does not recognise the traditional ownership of production forests	Yes, as a result of the project activities, households have had 50 years allocation of forest land or short term forest protection contacts
Benefits from forest management and protection	Yes, some monetary benefits through fines and fees. Benefits for those who participate in patrolling activities. Additional benefit through medicinal plants, honey, firewood and building materials for common use in village	Yes, occasionally monetary benefits mainly through carpentry activities. Additionally benefits for individual villagers through firewood, building materials, food security, medicinal plants and honey	Yes, logging activities, environmental benefits, food security, building materials, medicinal plants and fodder for livestock. Previously high monetary benefits for whole village but also individual people who participate the forest management	Yes, bamboo, firewood, carpentry materials, building materials, food security and medicinal plants and soil protection. Monetary benefits mainly through bamboo selling for individual households

Appendix 2 continued

Elements	Cases			
	Tanzania: villages' land forest reserve	Mozambique: joint forest protection of government forest reserve	Laos: joint forest management of government production forest	Vietnam: household level forestry
General improvements in livelihoods	No, except expected environmental benefits	No, except trained carpenters have better skills and access to income	Yes, the funds from logging were used for electrification, school buildings, etc. Also additional income activities through revolving funds	Yes, additional income activities through credit funds (goats, buffaloes, chickens, paddy field extension), and because of considerable stable income through selling bamboo
Market access and marketing skills and information	No, the project did not have activities related to marketing	No/Yes, during the project for carpentry products and honey but not since project phased out	Yes, for timber but not for other products from the areas. The project aims to improve markets for NTFP	No, after the project phased out farmers had difficulties over access to markets. Where there are markets (bamboo), prices are low and farmers can not negotiate prices
Long-term integrated extension services	No, the project concentrated only on forestry extension and after the project there have been very little funds for any type of extension	No/Yes, after the project local environmental association did not have human nor financial capacity to continue extension	Yes, but in future funding will be difficult, after external funding from the current project ceases	No/Yes, during the project integrated extension was provided but after the project there has been lack of human and financial capacity to ensure the extension

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